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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,591	01/09/2002	Earl Vickers	2045.267US1	6349
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EXAMINER				
LAO, LUN S				
ART UNIT		PAPER NUMBER		
2614				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@slwip.com
request@slwip.com

Office Action Summary

Application No.

10/043,591

Applicant(s)

VICKERS ET AL.

Examiner

LUN-SEE LAO

Art Unit

2614

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/CD)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Introduction

1. This action is in response to the amendments filed on 07-27-2009.

Claims 1-21 have been canceled and claims 22-36 have been added. Claims 22-36 are pending.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "evaluating an audio track to determine the loudness levels of a plurality of frames in the audio track such that the loudness levels of the plurality of frames are representative of the loudness distribution of frames across the entire audio track; determining an apparent loudness weighting for the plurality of frames of the audio track such that the weighting emphasizes the relatively greater effect that louder frames have on loudness perception, while including the contribution to overall loudness made by less loud frames; and adjusting the loudness of the track based on the determined loudness levels and apparent loudness weighting of the plurality of frames so that the apparent loudness of the track matches a desired apparent loudness" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 22-36 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent¹ and recent Federal Circuit decisions² indicate that a statutory "process" under 35 U.S.C. 101 must (1) be

¹ *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

² *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

ties to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim recites a series of steps or acts to be performed, the claim neither transforms underlying subject matter nor is positively tied to another statutory category that accomplishes the claimed method steps, and therefore does not qualify as a statutory process. For example the **adjusting the dynamics of an audio track** method including steps of evaluating, determining and adjusting is of sufficient breadth that it would be reasonably interpreted as a series of steps completely performed mentally, verbally or without a machine. **The Applicant has provided no explicit and deliberate definitions of "evaluating", "determining" or "adjusting" to limit the steps to the electronic form of the" audio track".**

Consider claims 30-36 they are essentially similar to claims 22-29 and are rejected for the reason stated above apropos to claims 22-29.

¹ *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

² *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

Claim Rejections - 35 USC § 112

5. Claims 22-29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claim²² limitation as recited “evaluating an audio track to determine the loudness levels of a plurality of frames in the audio track such that the loudness levels of the plurality of frames are representative of the loudness distribution of frames across the entire audio track”. However, the specification does not clearly disclose that “evaluating an audio track to determine the loudness levels of a plurality of frames in the audio track such that the loudness levels of the plurality of frames are representative of the loudness distribution of frames across the entire audio track” will be performed. The applicant pointed the newly limitation support by specification in paragraph [0036] (see the remarks page 8). In paragraph [0034] only discloses To address these issues when determining the overall loudness (the "long-term loudness matching level" or LLML) of an audio track, a series of individual (i.e. per frame) loudness values are obtained for a number of frames that make up the audio track. The individual loudness values are then weighted in a manner that emphasizes the relatively greater effect that louder frames have on loudness perception, while still taking into account the contribution to overall loudness made by less loud frames. It is not supported in the specification nor in any claim originary presented and any figures.

6. Claims 30-36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claim 30 limitation as recited “evaluating an audio track to determine the loudness levels of a plurality of frames in the audio track such that the loudness levels of the plurality of frames are representative of the loudness distribution of frames across the entire audio track”. However, the specification does not clearly disclose that “evaluating an audio track to determine the loudness levels of a plurality of frames in the audio track such that the loudness levels of the plurality of frames are representative of the loudness distribution of frames across the entire audio track” will be performed. The applicant pointed the newly limitation support by specification in paragraph [0061] and fig. 10 (see the remarks page 8). In paragraph [0061] only discloses To address this issue, it is desirable to provide specific compression to each audio track automatically. The selection of compression thresholds in this manner can be illustrated by the use of dynamics profiles, shown on the right hand side of Fig. 5. A dynamics profile provides an overview of the statistical (but not temporal) distribution of dynamics within an audio track. For a given percentile value P on the x-axis, the dynamics profile has a corresponding dB value V on the y-axis, such that P% of the frames in the audio track are softer or equal in loudness to V. It is not supported in the specification nor in any claim originary presented and any figures.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 22-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silfvast et al. (US PAT.5524060) in view of Kuhn et al. (US PAT. 6414960).

Consider claim 22 Silfvast teaches a method of adjusting the dynamics of an audio track, comprising: determining(see fig. 10(169,171,170,173) an apparent loudness weighting for the plurality of frames of the audio track such that the weighting emphasizes the relatively greater effect that louder frames have on loudness perception, while including the contribution to overall loudness made by less loud frames(see col. 7 line 43-col. 8 line 61); and adjusting(Knobs, Bypass, link dyn) the loudness of the track based on the determined loudness levels and apparent loudness weighting of the plurality of frames so that the apparent loudness of the track matches a desired apparent loudness(see figs. 3,4, 7a-7c, 10 and see col.14 line 41-col. 15 line 32); but Silfvast does not explicitly teach evaluating an audio track to determine the loudness levels of a plurality of frames in the audio track such that the loudness levels of the plurality of frames are representative of the loudness distribution of frames across the entire audio track.

However, Kuhn teaches evaluating an audio track to determine the loudness levels of a plurality of frames in the audio track such that the loudness levels of the plurality of frames are representative of the loudness distribution of frames across the entire audio track (see figs 10-12 and col. 9 line19-col. 10 line 64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Kuhn into Silfvast to provide a highly efficient and compact way of mapping the statistics of actual audio signal for the sound system.

Consider claims 23-25 Silfvast as modified by Kuhn teaches the method of adjusting the dynamics of an audio track wherein evaluating an audio track to determine the distribution of loudness levels present in the audio track comprises determining levels for all frames comprising the audio track(In Kuhn, see fig. 10 and col. 9 line19-col. 10 line 64); and the method of adjusting the dynamics of an audio track wherein evaluating an audio track to determine loudness levels for a plurality of frames in the audio track comprises determining levels for frames sampled from across all frames comprising the audio track(In Kuhn, see figs. 4-9 and col. 7 line16-col. 8 line 67); and the method of adjusting the dynamics of an audio track wherein evaluating an audio track to determine loudness levels for a plurality of frames in the audio track comprises determining levels for all frames in the audio track(In Kuhn, see figs. 4-9 and col. 7 line16-col. 8 line 67).

Consider claims 26-29 Silfvast as modified by Kuhn teaches the method of adjusting the dynamics of an audio track further comprising using an emphasis parameter to derive the apparent loudness weight of an individual frame of the audio track such that the apparent loudness weight comprises the emphasis parameter raised to the negative power of a loudness value for the frame(see figs. 3,4, 7a-7c, 10 and see col.14 line 41-col. 15 line 32); and the method of adjusting the dynamics of an audio track wherein at least one of evaluating an audio track to determine the loudness levels of a plurality of

frames and determining an apparent loudness weighting for the plurality of frames comprises performing such calculations based on loudness value distribution information for the audio track represented in a histogram(In Kuhn, see figs. 4-9 and col. 7 line16-col. 8 line 67); and the method of adjusting the dynamics of an audio track of claim 22, wherein the apparent loudness weight is frequency-weighted to compensate for perceived loudness differences at different frequencies(see figs. 3,4, 7a-7c, 10 and see col.14 line 41-col. 15 line 32); and the method of adjusting the dynamics of an audio track wherein adjusting the loudness of the track comprises combining aggregated weighted loudness values to determine apparent loudness for the track (see figs. 3,4, 7a-7c, 10 and see col.14 line 41-col. 15 line 32).

Consider claim 30 Silfvast teaches a method of adjusting the dynamics of an audio track, comprising: using the loudness levels of a plurality of frames in the audio track to calculate a dynamic spread of the audio track; determining a non-linear compressor transfer function configured to produce a desired dynamic spread (see figs. 3,4, 7a-7c, 10 and see col.14 line 41-col. 15 line 32) the non-linear compressor transfer function comprising greater dynamic range compression at high loudness levels that at low loudness levels; and applying the determined non-linear compressor transfer function to the audio track to produce an audio track with the desired dynamic spread (see figs. 7a-7c, 10-11b and see col.15 line 3-col. 16 line 32); but Silfvast does not explicitly teach evaluating an audio track to determine the loudness levels of a plurality of frames in the audio track such that the loudness levels of the plurality of frames are representative of the loudness distribution of frames across the entire audio track.

However, Kuhn teaches evaluating an audio track to determine the loudness levels of a plurality of frames in the audio track such that the loudness levels of the plurality of frames are representative of the loudness distribution of frames across the entire audio track (see figs 10-12 and col. 9 line19-col. 10 line 64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Kuhn into Silfvast to provide a highly efficient and compact way of mapping the statistics of actual audio signal for the sound system.

Consider claims 31-36 Silfvast as modified by Kuhn teaches the method of adjusting the dynamics of an audio track further comprising adjusting the loudness of the track based on the determined loudness levels so that the apparent loudness of the track matches a desired apparent loudness (see figs. 3,4, 7a-7c, 10 and see col.14 line 41-col. 15 line 32); and the method of adjusting the dynamics of an audio track wherein a threshold between linear segments of the non-linear compressor transfer function is based on statistical analysis of audio track(see figs. 3,4, 7a-7c, 10 and see col.14 line 41-col. 15 line 32); and the method of adjusting the dynamics of an audio track wherein the threshold is at specified percentile domain of loudness levels in the audio track(see figs. 3,4, 7a-7c, 10 and see col.14 line 41-col. 15 line 32); and the method of adjusting the dynamics of an audio track further comprising normalizing the loudness of the specified percentile domain of loudness levels in audio track to a desired loudness level (see figs. 3,4, 7a-7c, 10 and see col.14 line 41-col. 15 line 32); and the method of adjusting the dynamics of an audio track wherein determining a non-linear compressor

transfer function configured to produce a desired dynamic spread comprises estimation of dynamic spread on the audio track with a calculated non-linear compressor transfer function applied by applying the calculated non-linear compressor transfer function to at least one of histogram or sample frame data(see figs. 7a-7c, 10-11b and see col.15 line 3-col. 16 line 32); and the method of adjusting the dynamics of an audio track wherein the non-linear compressor transfer function is iteratively calculated to achieve a desired dynamic spread(see figs. 7a-7c, 10-11b and see col.15 line 3-col. 16 line 32).

Response to Arguments

9. Applicant's arguments with respect to claims 22-36 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

12. Any response to this action should be mailed to:

Mail Stop ____ (explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Facsimile responses should be faxed to:
(571) 273-8300

Hand-delivered responses should be brought to:
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao, Lun-See whose telephone number is (571) 272-7501. The examiner can normally be reached on Monday-Friday from 8:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin, can be reached on (571) 272-7848.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (571) 272-2600.

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Examiner, Art Unit 2614
Patent Examiner
US Patent and Trademark Office
Knox

571-272-7501

Date 11-13-2009

/Vivian Chin/

Supervisory Patent Examiner, Art Unit 2614